

REMARKS/ARGUMENTS

In this amendment, no claims have been amended, added, or canceled. Thus, claims 1-21 remain pending in this application.

Allowable Subject Matter

Applicants note with appreciation the indicated allowability of claim 12.

Rejection under 35 USC § 103(a), Malakapalli and Frederickson in view of Tamai

Claims 1-11, 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malakapalli (U.S. Pat. No. 6,467,060) in view of Frederickson (U.S. Pat. No. 5,805,799) and further in view of Tamai (U.S. Pat. No. 6,799,283).

Claim 1 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites:

a cycle redundancy check (CRC) engine that generates old cyclic redundancy check bytes based on the old LBA, performs a first exclusive OR (XOR) function on the old LBA and the new LBA, performs Galois Field multiplication on a result of the first XOR function, and performs a second XOR function on a result of the Galois Field multiplication and the old cyclic redundancy check bytes to generate updated cyclic redundancy check bytes that are based on the new LBA.

Malakapalli

Malakapalli is directed to a method using a frame CRC, such as 894, instead of an IOEDC or parity bit for checking whether a frame of a sector that is retrieved from DRAM is accurate, which reduces overhead. *See Malakapalli*, abstract and col. 12 lines 5-10. If recalculated CRC 894 (obtained from LBA seeding) is not equal to a retrieved CRC 893, the frame 883 and the associated CRC 893 are deemed to be defective. *Id.*, col. 12 lines 3-10. Subsequently, the frame CRCs 895-897 are assembled into a master CRC 898. *Id.*, col. 12 lines 17-30. For checking whether sector data retrieved from disk are accurate, a master CRC 990 is recalculated from CRCs 961-963 and frame LBAs 975-977 and compared for equality to master CRC 960 that was read from disk. *Id.*, col. 13 lines 5-22. The Office Action states that

Malakapalli does not explicitly disclose using XOR functions to generate CRC bytes from LBA information. *See Office Action*, page 3 lines 3-7.

Fredrickson

Fredrickson is directed to a method of including LBA information within a data integrity block (DIB) that is appended to user data in order to provide LBA verification of the user data at different points in the data path. *See Fredrickson*, abstract and col. 2 lines 14-20. The DIB 118 is created by first summing user data u_i one word at a time by using of XOR gate array 203 and feedback path 212. *Id.*, Figure 4 and col. 10 lines 46-66. The final summation is then sent to Galois field multiplier 225. *Id.*, col. 10 line 65 to col. 11 line 7. The output of the multiplier 225 is then XORed with the LBA word using XOR gate array 232. *Id.*, col. 11 lines 7-19. To check the LBA validity, the DIB may be regenerated and checked with a stored value. *Id.*, col. 3 lines 8-22.

Notably, the first XOR 203 performs an XOR on the user data, and not on an old LBA and a new LBA. Nowhere else does Fredrickson mention an XOR of old LBA and a new LBA. Thus, Fredrickson does not teach or suggest performing “*a first exclusive OR (XOR) function on the old LBA and the new LBA,*” as recited in claim 1.

Furthermore, the second XOR 232 performs an XOR on the result of Galois multiplier 225 and LBA data, and not the old CRC bytes. Thus, Fredrickson does not teach or suggest performing “*a second XOR function on a result of the Galois Field multiplication and the old cyclic redundancy check bytes,*” as recited in claim 1.

Malakapalli and Fredrickson

Additionally, even if there is a motivation to combine Fredrickson and Malakapalli, the result would be that Malakapalli's CRC 841 created from an LBA seed 842 (See figure 8 Malakapalli) would be performed using the process of Fredrickson as described above. Thus, the combination would not change the functionality of the XOR gates 203 and 232. Accordingly, the combination would not teach or suggest the above-mentioned XOR functions.

Malakapalli, Fredrickson, and Tamai

Finally, Tamai simply states that if the sector of data is recorded in the defect log list, that the data may be reassigned to a different LBA. *See Tamai*, col. 17 lines 7-18. Thus, a

combination including Tamai would simply recalculate a new CRC using only the new LBA using the same XOR functions of Fredrickson. Accordingly, there is no teaching or suggestion as to using the old CRC bytes to generate new updated CRC bytes based on the new LBA. Furthermore, there is no teaching or suggestion that this might be done using two XOR functions with the prescribed inputs as recited in claim 1.

For at least the reasons stated above, Applicant submits that claim 1 and its dependent claims 2-7 and 20 are allowable over the cited references.

Applicants submit that independent claims 8 and 15 should be allowable for at least this same rationale. Claims 9-14 depend from claim 8; and claims 16-19 and 21 depend from claim 15 and thus derive patentability at least therefrom.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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